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Marijuana and Impaired Driving

Marijuana intoxication impairs driving

Impaired driving is a threat to everyone. There is mounting evidence from laboratory studies, driving simulator studies, and epidemiological research using crash injury and fatality data that show marijuana intoxication impairs psychomotor skills, reaction time, attention, and lane tracking.[1,2] Research indicates that impairments in performance are generally dose-related and typically persist for two to four hours after use.[3,4,5]

Driving under the influence of marijuana doubles one's risk of being in a crash.

A recent systematic review and meta-analysis of observational studies regarding cannabis use and motor vehicle collision risk found that driving under the influence of cannabis almost doubles (factor of 1.92) the risk of being in a motor vehicle crash compared to unimpaired driving.[6] Another meta-analysis evaluating data from nine epidemiological studies documented a slightly higher than doubling (2.66) of the risk of being in a motor vehicle crash.[7]

Multiple studies have found that after alcohol, marijuana is the most frequently detected substance in the general driver population as well as drivers involved in crashes.[8,9,10,11,12] In 14 states that performed toxicological testing on more than 80 percent of U.S. drivers who died within 1 hour of a crash, between 2005 and 2009, alcohol was detected as the most common substance in 40 percent of the drivers, followed by cannabinols in 10.5 percent of drivers.[9] Additional data from 1999 to 2010 shows the prevalence increasing from 4.2 percent in 1999 to 12.2 percent in 2010 in fatally injured drivers.[13]

Marijuana plus alcohol even higher risk

A review by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) found that the combined effects of marijuana and alcohol on laboratory performance measures are typically greater than the effects of marijuana alone, and act in either an additive or a multiplicative manner.[14] Case control studies of drivers in fatal crashes support these findings of increased risk when combing marijuana and alcohol.[15]

Pill form of THC also impairs driving

THC (delta-9-tetrahydrocannabinol) is the psychoactive ingredient in marijuana and is the active ingredient in Dronabinol (Marinol), a FDA approved prescription drug, for treating anorexia in AIDS, other wasting diseases, emesis in cancer patients undergoing chemotherapy, and chronic pain. Dronabinol impairs driving performance in a dose-dependent way.[16]

Youth perception of risk is decreasing, use and driving after smoking marijuana increasing

Marijuana use during the past 30 days by 12th graders is at the highest levels (22.7 percent) since 1999 and now exceeds cigarette use (16.3 percent).[17] From 2005 to 2013 the perception of great risk from being a regular marijuana user has declined significantly among 8th graders from 74 percent to 61 percent, among 10th graders from 66 percent to 47 percent and among 12th graders from 58 percent to 40 percent which is the lowest level since 1999.[17] One out of eight high school seniors are putting themselves and others at risk of harm by driving after using marijuana. In 2011, 12 percent of 12th graders during the past two weeks reported

driving after using marijuana, an increase from 10 percent in 2008. [18]

Research continues to evolve

There is a great deal of old or outdated information on the Web, which can confuse casual researchers. Many earlier studies on marijuana and impaired driving had difficulty documenting the true risk of accidents due to methodological or design errors.[19, 20] Studies using urine tests to include individuals with the long lasting inactive metabolite THCCOOH (11-nor-delta9-carboyxy-THC) in the cannabis-exposed group were flawed because this metabolite reflects only previous use and does not reflect impaired driving, lowering the risk found in the studies. Studies with delays in sample collection (up to 3-4 hours) following an accident may allow THC levels to decrease which may result in a cannabinoid negative. Other challenges include:

- Drivers consume other drugs with marijuana resulting in too few marijuana-only cases.
- Marijuana users often share demographic characteristics with high crash risk populations (i.e. male, youth)

These problems should serve as a cautionary note for individuals doing casual internet searches where websites might be making statements using faulty research. Guidelines for drugged driving studies were developed in 2008 to improve and standardize the research. [21, 22]

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